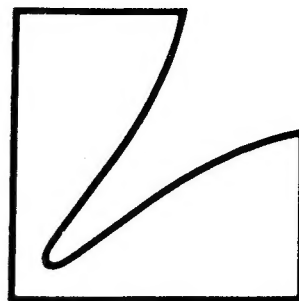
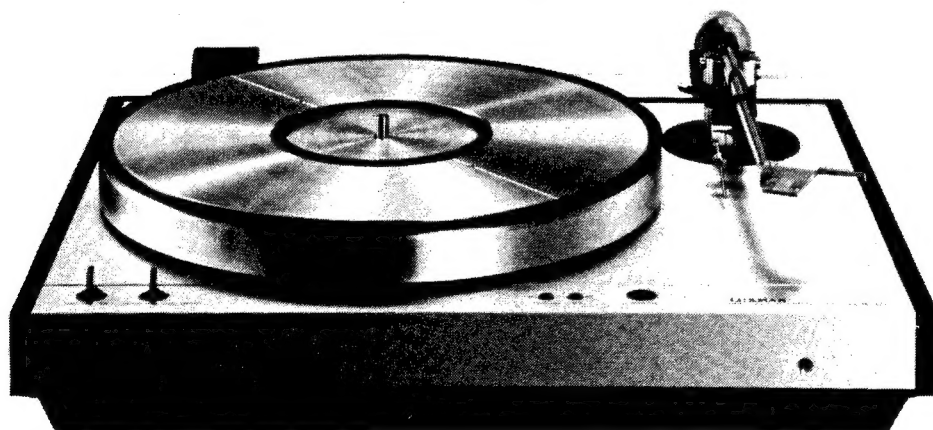


SERVICE MANUAL



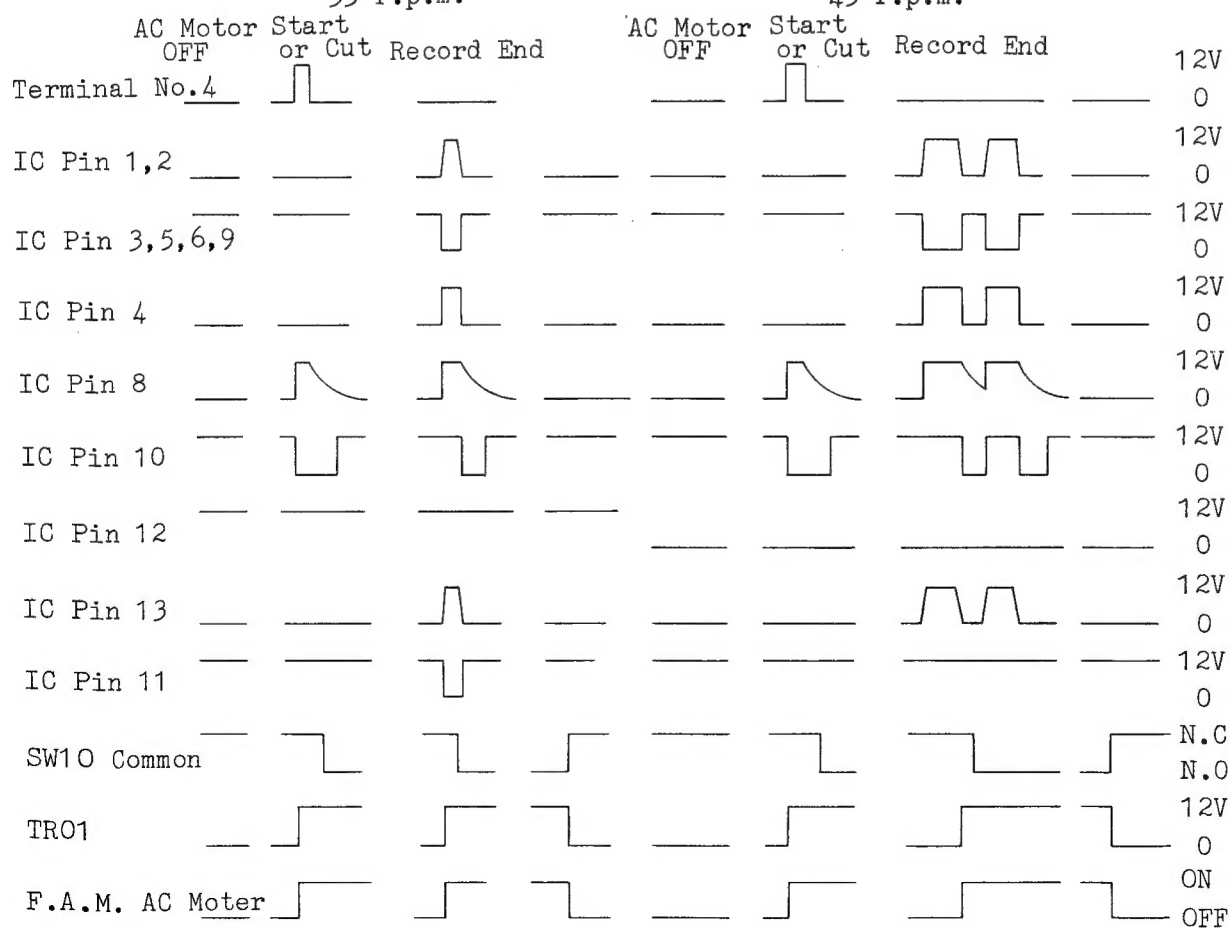
VACUUM DISC STABILIZER
FULLY AUTOMATIC TURNTABLE **PD-375**



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FULL AUTO MECHA. CIRCUIT TIMING CHART



EXPLANATION ABOUT FULL-AUTO MECHANISM

(1) Normal (Power SW ON only in Play)

Only NAND Gate input 12 is different between 33 r.p.m. and 45 r.p.m.

(2) Put on START/CUT Button

NAND Gate output 10 shall be OV, and TRO1 and AC motor shall be ON.

As soon as AC motor has been ON, SW 10 shall rotate until TRO1 becomes OFF after SW 10 on the cam at the final stage has again turned over and the cam at the final stage has turned over half.

(3) Record End

As inside most diameters of LP and EP Grooves are different each other, operation is also different (Its change can be done by individual r.p.m.)

33 r.p.m.

When the slit of Rester Lever comes into Sensor Assembly and the photo transistor becomes ON by L.E.D. light, NAND Gate output 11 shall be ON and AC motor shall begin to rotate.

45 r.p.m.

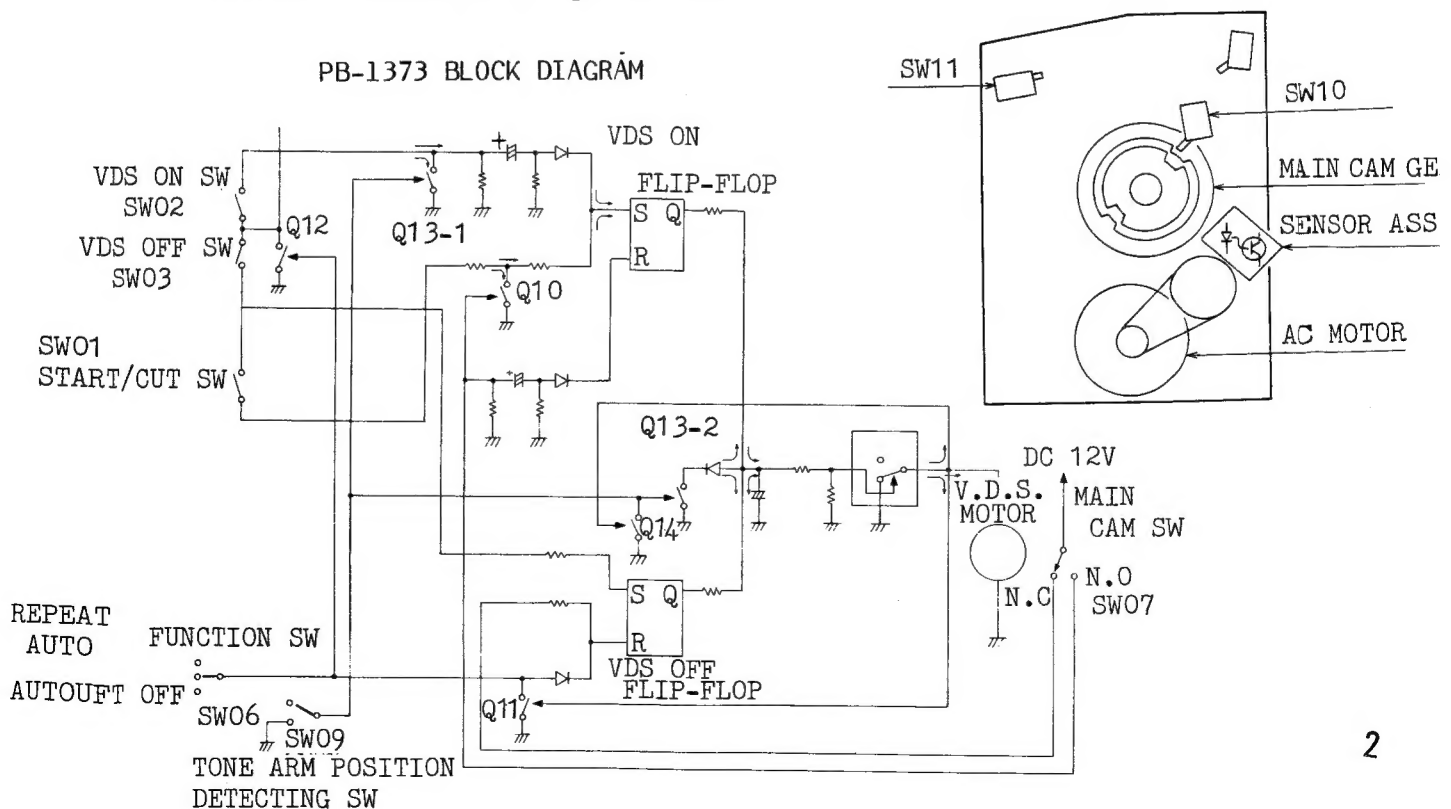
When the slit of Rester Lever comes into Sensor Assembly with a photo transistor's being ON and the tonearm reaches the inside most with the slit's shutting off L.E.D. light and eventually the photo transistor's being OFF, NAND Gate output 10 shall be OV and AC motor begins to rotate.

(On this occasion when the tonearm returns, the slit of Rester Lever again passes through Sensor Assembly and the above mentioned signal shall be input. However, it is not directly related since AC motor is in operation by SW 10.)

(4) Repeat

When the tonearm returns to the armrest in REPEAT mode, 12V shall be loaded to the 6P connector by SW 11 and same operation shall be made as in case of pressing START/CUT button.

REMARKS: As mentioned above be careful for any light from outside to come especially into Sensor Assembly when you are repairing since this full-auto mechanism is optical one.



EXPLANATION ABOUT TRANSISTOR'S

Q 10 2SC945

When the rotation started by depressing the "Start/Cut" button after the suction by V.D.S. button, this transistor works to cancel the set signal to FLIP-FLOP circuit of " V.D.S. on ".

---This prevents the mis-suction when the suction operates again once already sucked.

Q 11 2SC945

When the mode is set at " REPEAT ", the reset signal comes into the V.D.S. off FLIP-FLOP circuit. While the V.D.S. motor is rotating, this transistor operates to cancel this very reset signal until the motor stops rotating by the reset signal coming from SW-07 at the main cam.

---When the mode is set at " REPEAT " while V.D.S. motor is rotating, no problem to activate "V.D.S. on ". But when the "V.D.S. off " is depressed, V.D.S. motor stops rotating on the way, and the platter is locked. This transistor was adopted to avoid this trouble.

While the reset signal of V.D.S. off FLIP-FLOP circuit is to delete memory of V.D.S. off.

Q 12 2SC945

This works to cancel DC 12V fed into V.D.S. switch at the "REPEAT" mode.

---This transistor is used so that the V.D.S. on/off switch should not operate at " REPEAT " mode.

Q 13-1 2SC945

This operates to cancel not the set signal to be fed to V.D.S. off FLIP-FLOP circuit but the set signal to V.D.S. on FLIP-FLOP circuit except in the case that the tonearm is put on the arm rest position by the tonearm position detecting switch 09.

Q 13-2 2SC945

This operate to cancel the output coming from " V.D.S. on/off " FLIP-FLOP circuit so that the V.D.S. motor should not rotate except when the tonearm is at the arm rest by the tonearm detector switch 09.

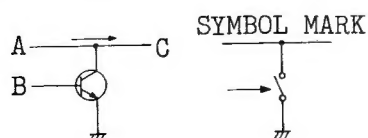
While when the " V.D.S. off " FLIP-FLOP circuit is set on, the V.D.S. operation starts after the tonearm get back to arm rest position.

---This transistor is adopted so that the platter should not be mechanically locked even if "V.D.S. on/off " button is switched on while playing.

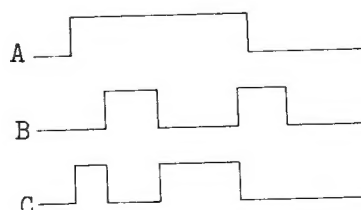
Q 14 2SC945

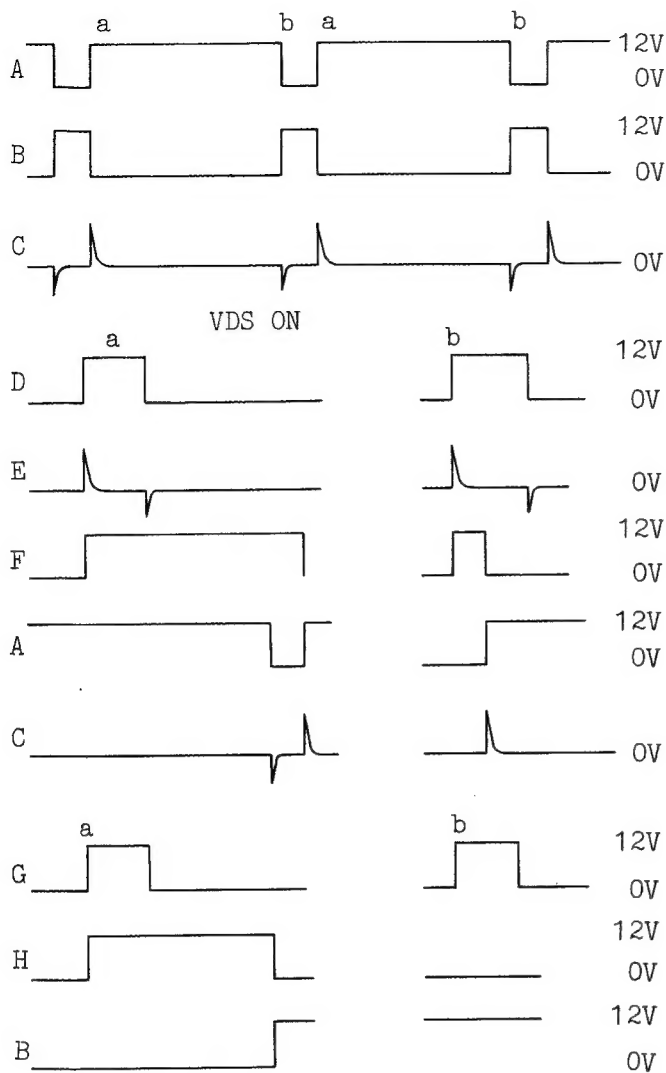
When the tonearm left from the arm rest, the output of V.D.S. on/off FLIP/FLOP circuit is cancelled by Q 13-2. While the tonearm is placed at the arm rest, V.D.S. operation starts, and even if the tonearm left the arm rest before the V.D.S. operation completes, this transistor works to cancel this blocking signal until the V.D.S. operation is achived.

MUTING CIRCUIT (CANCEL CIRCUIT)

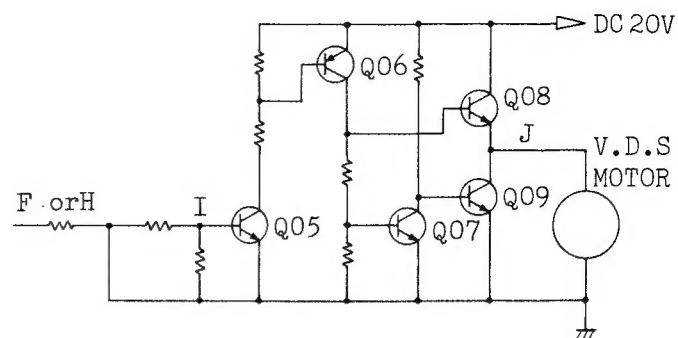


MUTING CIRCUIT TIMING CHART

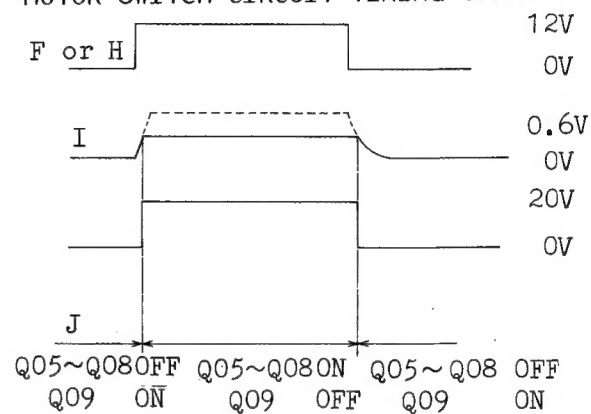




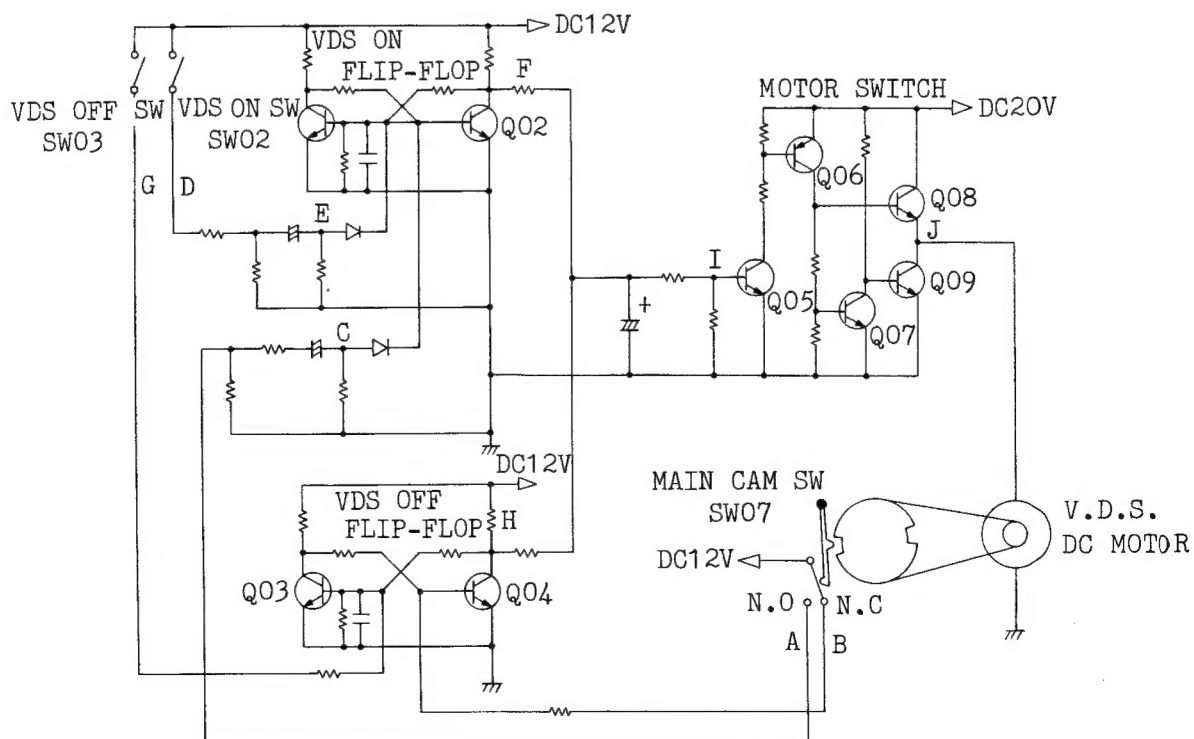
MOTOR SWITCH CIRCUIT



MOTOR SWITCH CIRCUIT TIMING CHART



PB-1373 CIRCUIT DIAGRAM



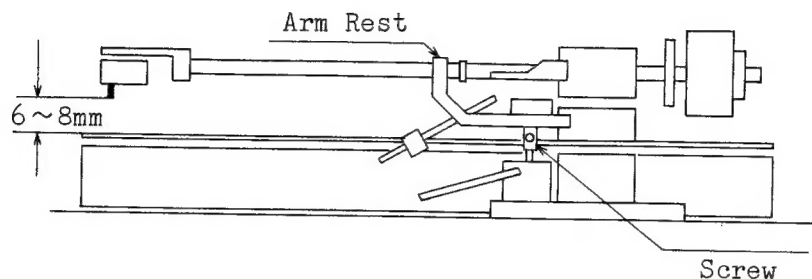
FULL-AUTO MECHANISM ALIGNMENT PROCEDURES

The re-alignment may be required due to the probable deviation in the measurements of the cartridge and disc employed although the complete alignment is already made at the factory side.

(1) Height adjustment of Arm-Lifter

- Set the disc sucked and put the unit into the playback mode.
- Loosen the fixing screw for arm-lifter, and adjust the height so that the clearance between the stylus tip and surface of the disc could be procured by about 6--8mm.

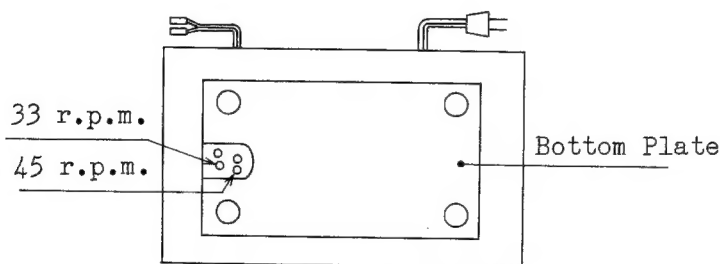
Remarks: Proceed this alignment so that the tone-arm should not be hooked by the arm-rest.



(2) Lead-In Adjustment

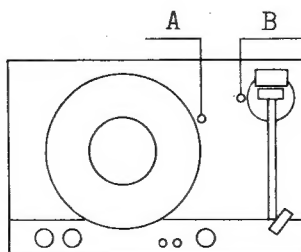
- Obtain the playback mode, and press the Start/Cut switch.
- Insert the (-) driver from the holes as illustrated in the drawing, and adjust the Lead-In position by rotating the eccentric pin.

33 r.p.m. and 45 r.p.m. can be adjusted separately.



(3) Lead-Out Adjustment

- Insert the (+) driver from the (A) as depicted, and loosen the screw for the sensor assembly.
- Insert the (-) driver from the hole (B) as shown in illustration, and adjust the Lead-Out position by moving the position of sensor assembly.
- After adjustment, fasten the same screw explained in the step (3)-a.



FULL-AUTO MECHANISM CIRCUIT ALIGNMENT PROCEDURES

There happen to be eccentric record discs among those which are available in markets and in case these eccentric ones are used for playing, the wave form will be as per Fig. 1 when the rester lever slit passes through the light axis of the sensor.



Fig.1

When eccentricity is remarkable, the wave form reads as per Fig. 2 and mis-operation shall be caused as for EP discs.

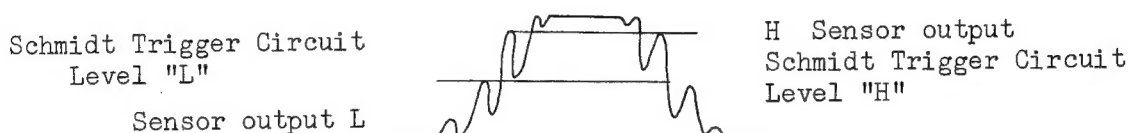


Fig.2

As return action is made on EP discs when output of schmidt trigger circuit comes to be "L" from "H", mis-operation shall be caused at the portion of the enlarged curve in Fig. 2.

So, prevent from mis-operation, make the hysteresis as wide as possible and adjust output level of the sensor to it.

Widening of the hysteresis in schmidt trigger circuit will be efective to prevention of outcoming noises, etc.

Adjustments of the hysteresis and output level of the sensor are made respectively by the VR02 and VR01 as far as the present circuit is concerned.

In the actual procedures firstly adjust the hysteresis and secondly output level of the sensor.

The hysteresis is not always same since threshold value of IC's varies depending on IC's to be used.

So, at first adjust "H" level of schmidt trigger circuit to $(x-0.8)V$ by the VR02 when output of the sensor is "H" (saturated state, provided to be xV), and at this point "L" level (provided to be yV) of schmidt trigger circuit shall be decided.

Secondly adjust "L" level of output of the sensor to $(y-0.6)V$ by the VR01.

Above is all for adjustment.

Remarks: As to "H" level difference by $0.8V$ is made between threshold values of the sensor output and schmidt threshold, and as to "L" level difference by $0.6V$ between the threshold values. Those values are decided in consideration of changes in temperature, humidity and time process and other drifts as well.

P.C.B.ALIGNMENT PROCEDURES

Set voltage for adjustment at $11.5 \pm 0.1V$ with use of an EP disc and prevent the sensor from receiving external light.

1. Adjustment of the VR02 (adjustment of the hysteresis in schmidt trigger circuit).
 - a. Make preliminary adjustment of the VR02 not to make I.C. No.4 "H" from "L" when the sensor is open.

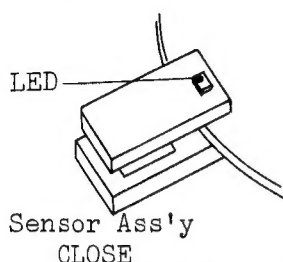
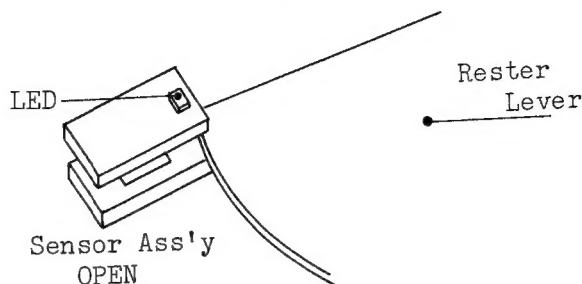


Fig.3



- b. Separate output of the sensor as per the Fig.4 below and put a variable resistor externally to give output of the sensor voluntarily.

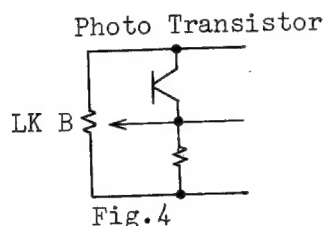
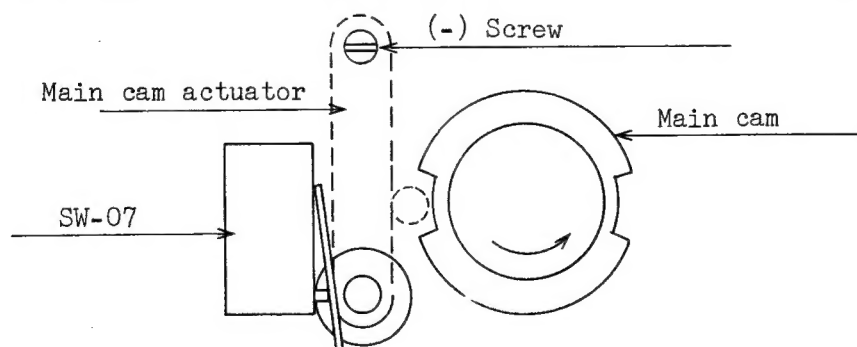


Fig.4

- c. Measure "H" of output of the sensor (provided to be V) at the foregoing step a and give voltage of $(V - 0.8V)$ at the foregoing step b.
 - d. At the foregoing step c adjust the VR02 to make I.C. No.4 "H" from "L".
 - e. Separate the external variable resistor.
2. adjustment of the VR01
 - a. Make preliminary adjustment of the VR01 not to make I.C. No.4 "L" from "H" when the sensor is made close from open.
 - b. Adjust the VR01 until I.C. No.4 becomes "L" from "H" when the sensor is made open from close. At this time read out output of the sensor and adjust the VR01 to make the output $-0.6V$ right at the moment when I.C. No.4 has becomes "L" from "H".

ADJUSTMENT OF SW-07 (Main Cam SW)

This alignment is needed in the "play" mode when the charge lever cannot be opened sufficiently or the lever is going to shut again causing irregular noise or preventing the platter from turning due to the touch of lever shaft to the platter.



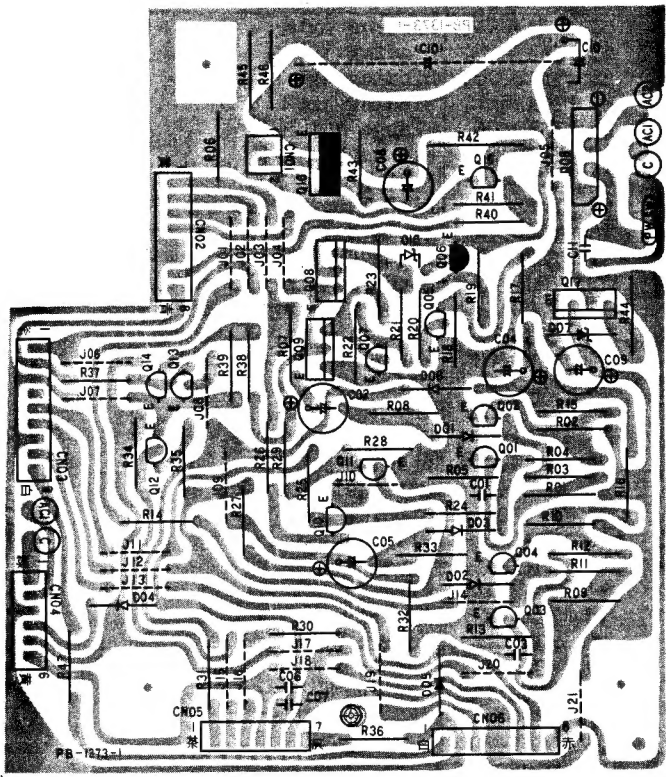
As the pivot of the main cam actuator is eccentric, you can change the timing of the SW-07 by turning the pivot with a (-) screw driver.

Adjust the main cam actuator so that the motor can stop when the charge lever is in the at most open status by pushing the V.D.S. on switch (SW02).

However, as the pivot of main cam actuator plays the circular movement, there are two points having the same timing between the main cam and main cam actuator.

- 7 Be sure of choosing the very position which pushes the SW-07 more than the other. After adjustment, do not forget to put glue.

Remarks
Capacitor: My...Mylar, El...Electrolytic, Ce...Ceramic



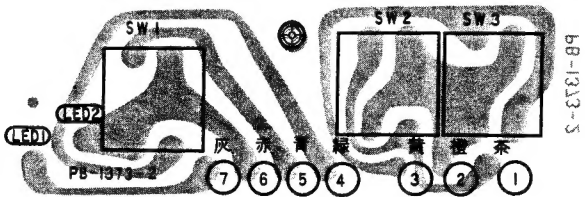
Symbol No.	Stock No.	Description		
(Capacitor)				
C01	CK0157	0.04 uF	25WV	Ce
C02	CE1749	0.47 uF	50WV	El
C03	CK0157	0.04 uF	25WV	Ce
C04	CE1718	22 uF	16WV	El
C05	CE1749	0.47 uF	50WV	El
C06	CK0157	0.04 uF	25WV	Ce
(Carbon Resistor)				
R01	RDO455	8.2K	1/3W	
R02	RDO455	8.2K	1/3W	
R03	RDO445	56K	1/3W	
R04	RDO447	39K	1/3W	
R05	RDO452	15K	1/3W	
R06	RDO445	56K	1/3W	
R07	RDO457	5.6K	1/3W	
R08	RDO445	56K	1/3W	
R09	RDO455	8.2K	1/3W	
R10	RDO455	8.2K	1/3W	
R11	RDO445	56K	1/3W	
R12	RDO447	39K	1/3W	
R13	RDO452	15K	1/3W	
R14	RDO449	27K	1/3W	
R15	RDO449	27K	1/3W	
R16	RDO449	27K	1/3W	
R17	RDO450	22K	1/3W	
R18	RDO450	22K	1/3W	
R19	RDO455	8.2K	1/3W	
R20	RDO450	22K	1/3W	
R21	RDO455	8.2K	1/3W	
R22	RDO457	5.6K	1/3W	
R23	RD2586	1.5K	1/2W	
R24	RDO452	15K	1/3W	

Symbol No.	Stock No.	Description		
(Transistor)				
Q01	TR0029	2SC945		
Q02	TR0029	2SC945		
Q03	TR0029	2SC945		
Q04	TR0029	2SC945		
Q05	TR0029	2SC945		
Q06	TR0320	2SA992		
Q07	TR0029	2SC945		
Q08	TR0047	2SD235 or 2SD880		
Q09	TR0047	2SD235 or 2SD880		
Q10	TR0029	2SC945		
Q11	TR0029	2SC945		
Q12	TR0029	2SC945		
Q13	TR0029	2SC945		
Q14	TR0029	2SC945		
Q15	TR0029	2SC945		
Q16	TR0228	2SB435 or 2SB596		
Q17	TR0047	2SD235 or 2SD880		
(Diode)				
D01	TD0214	Silicon	US1035	
D02	TD0214	Silicon	US1035	
D03	TD0214	Silicon	US1035	
D04	TD0214	Silicon	US1035	
D05	TD0001	Silicon	1S4001	
D06	TD0214	Silicon	US1035	
D07	TD0027	Zener	WZ-120	
D08	TD0139	Bridge	SIVB20	

C07	CK0157	0.04 uF	25WV	Ce
C08	CE1 703	20 uF	6.3WV	E1
C09	CE1 720	47 uF	16WV	E1
C10	CE1821	3300 uF	25WV	E1
C11	CQ1 325	0.01 uF	50WV	My

R25	RDO455	8.2K	1/3W
R26	RDO447	39K	1/3W
R27	RDO453	12K	1/3W
R28	RDO455	8.2K	1/3W
R29	RDO446	47K	1/3W
R30	RDO449	27K	1/3W
R31	RDO449	27K	1/3W
R32	RDO455	56K	1/3W
R33	RDO445	56K	1/3W
R34	RDO464	1.5K	1/3W
R35	RDO448	33K	1/3W
R36	RDO465	1.2K	1/3W
R37	RDO444	68K	1/3W
R38	RDO444	68K	1/3W
R39	RDO455	8.2K	1/3W
R40	RDO450	22K	1/3W
R41	RDO450	22K	1/3W
R42	RS5028	1.2K	1 W
R43	RDO447	39K	1/3W
R44	RD2578	680	1/2W
R45	RD2588	1.8K	1/2W
R46	RD2588	1.8K	1/2W
R47	RDO466	1K	1/3W

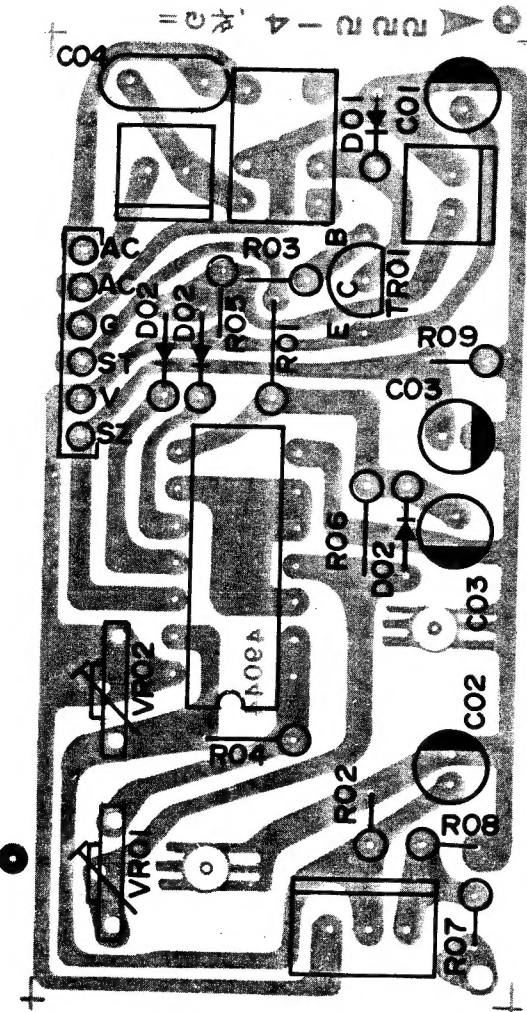
PB-1373-2 PARTS LIST



PB-1373-4 PARTS LIST



FULL-AUTO MECHA.P.C.B.PARTS LIST

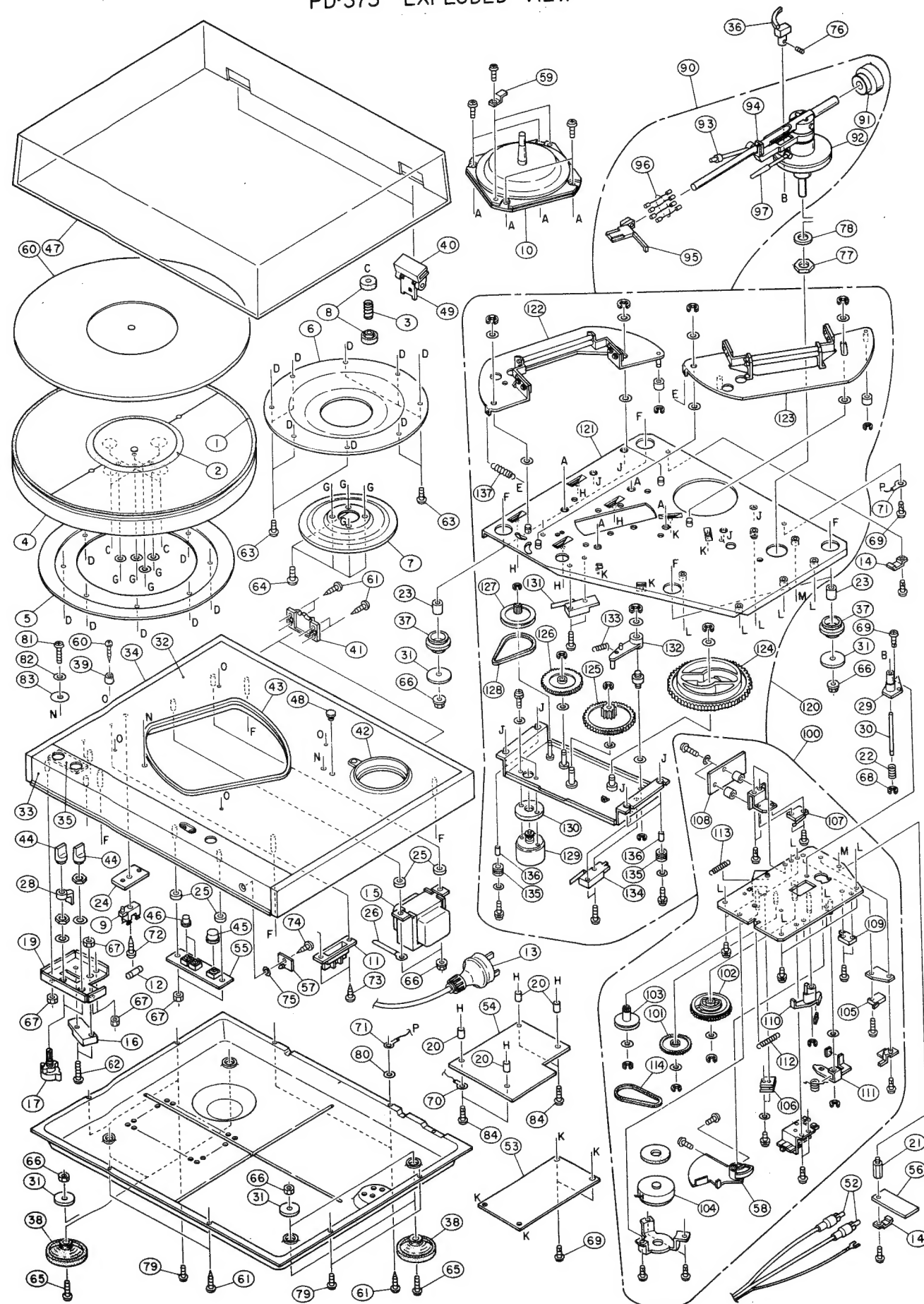


Symbol No.	Stock No.	Description
(Switch)		
SW01	SP0190	Start Cut
SW02	SP0190	V.D.S. On
SW03	SP0190	V.D.S. Off

Symbol No.	Stock No.	Description
(L.E.D.)		
D09	TD0196	SLR-30UR

Symbol No.	Stock No.	Description		
(Transistor)				
TR01	TR0087	2SA1015		
(Diode)				
D01	TDQ0504	10D-1		
D02	TD5012	1S953		
(Semi-Fixed Resistor)				
VR01	RTQ0004	100K	B	
VR02	RTQ0004	100K	B	
(Carbon Resistor)				
R01	RDO043	1K	1/4W	
R02	RDO023	39K	1/4W	
R03	RDO030	10K	1/4W	
R04	RDO025	27K	1/4W	
R05	RDO017	100K	1/4W	
R06	RDO011	330K	1/4W	
R07	RDO043	1K	1/4W	
R09	RDO011	330K	1/4W	
(Electrolytic Capacitor)				
C01	CE0819	33uF	16WV	
C02	CE0854	10uF	50WV	
C03	CE0853	4.7uF	50WV	
(Mylar Capacitor)				
C04	CQ0013	0.022uF	50WV	
(I.C.)				
	TC0140	TC4011BP		
(Relay)				
		OUC-S-112D		

PD-375 EXPLODED VIEW



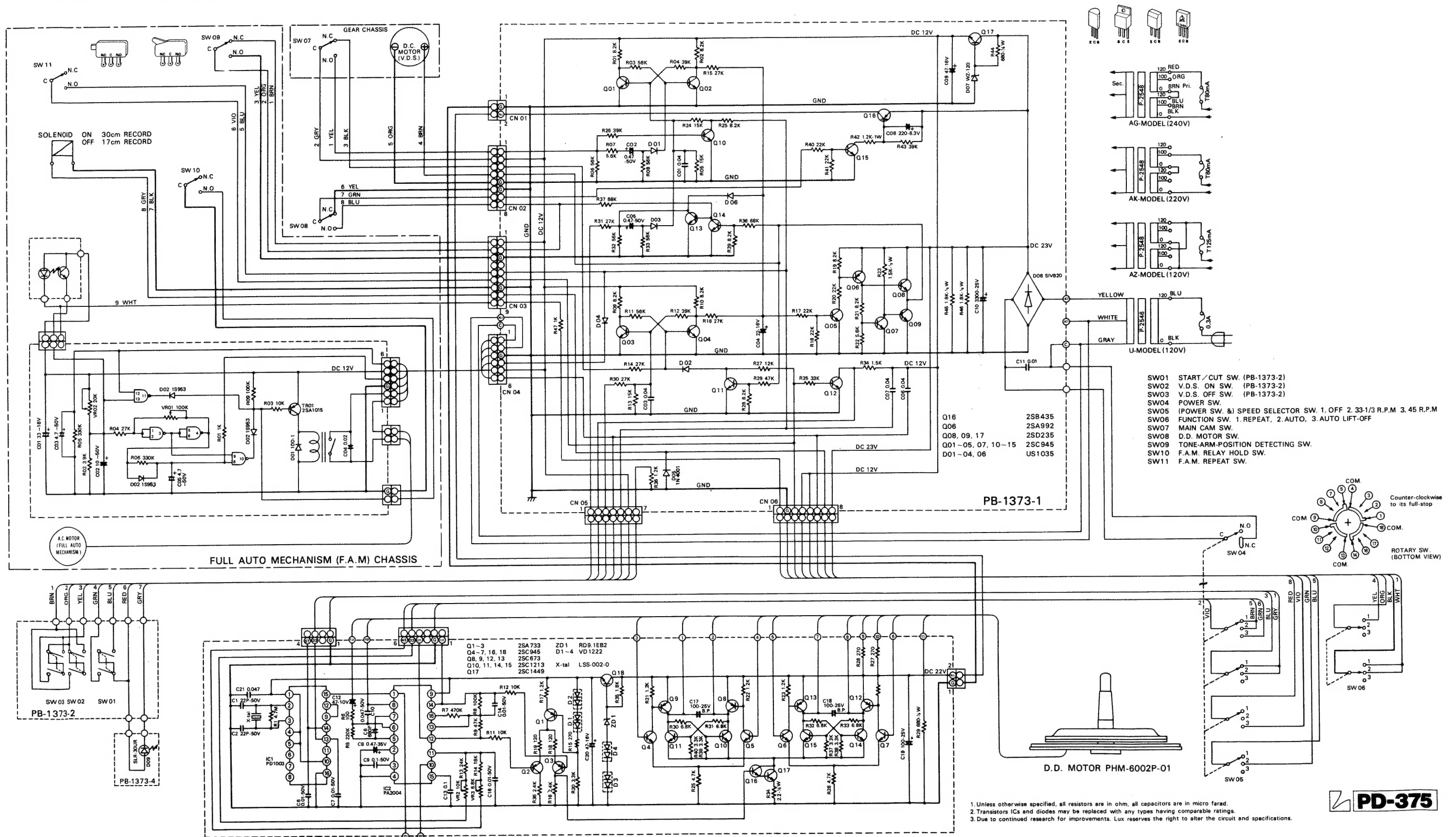
Exploded View Parts List

Symbol No.	Stock No.	Description	Symbol No.	Stock No.	Description
1	UN1031-E	Sealing Pad (out)	62	YAA30A18	Binding 3x18
2	UN1032-E	Sealing Pad (in)	63	YAA30A04	Binding 3x4
3	UN1039	Coil Spring	64	YAA40C08	Binding 4x8 BK
4	UN1254	Turn Table	65	YAA40A12	Binding 4x12
5	UN1255	Sucking Core	66	YNK040A	Flange Nut B-5
6	UZ1257	Sucking Plate	67	YNK030A	Flange Nut B-6
7	UZ1292	Roller Plate	68	YWJ025C	E Ring 2.5
8	WZ1154	Spring	69	YJB30A06	Bind Tapping 3x6
9	AH0016	Fuse Holder (UZ)	70	YZB030H	Earth Lug
10	AH0019	Fuse Holder (AK,AG)	71	YZB040H	Earth Lug
11	AM1008	DD Motor PHM6002P-01	72	YCG31A13	Round Tapping 3.1x13
12	AT0069	Terminal Plate	73	YCG31A10	Round Tapping 3.1x10
13	BF0072	Fuse 0.3A (UZ)	74	YCG27A08	Round Tapping 2.7x8
	BF0201	Fuse 0.1AT (AZ)	75	YWZ030W	Fiver Washer 3
	BF0217	Fuse 0.08 AT (AG,AK)	76	YCD26C04	Allen Fex. Set 2.6x4
14	BK0018	AC Cord (U)	77	YND120A	VR. Nut 12PM
	BK0022	AC Cord (AK)	78	YWA120A	Flat Washer 12VP
	BK0023	AC Cord (AG)	79	YAA30C06	Binding 3x6 BK
15	BZ0023	Cord Clamp	80	YWEO40M	External Lock Washer
16	PT2546	Power Trans(U)	81	YAA40A20	Binding 4x20
	PT2548	Power Trans (AK,AG)	82	YWA040T	Flat Washer 4
17	SP0191	GV Switch	83	MH1004	Caution Seal
18	SR0158	Rotary Switch	84	YAA30A06	Binding 3x6
19	UE1112	Bottom Plate	90	WZ1192	Tone Arm Ass'y
20	UR1319	Bracket	91	WZQ0018	Weight Ass'y
21	US0003	P.C.B. Stand	92	WDQ0010	Arm Base
22	US5023	Stand	93	WZQ0015	IFC Ass'y
23	UU1041	Lifter Spring	94	WZQ0016	Arm Rest Clip
24	UW1131	Insulator Column	95	WZ1191	Head Shell
25	UW1139	Spacer	96	WZQ0018	Cartridge Wire
26	UW1140	Spacer	97	WZQ0017	Arm Lifter Lever
27	UZ1114	Bind Bracket	100	UZ1285	Full Auto Mecha Ass'y
28	UZ1282	Switch Lever	101	UOQ0006	Gear
29	UZ1283	Lift Bearing	102	UOQ0007	Cam Ass'y
30	UZ1284	Lift Shaft	103	BXQ0001	Pulley
31	UZ1286	Insulator Spacer	104	AMQ0102	AC Motor Ass'y
32	WA1231	Aluminum Panel A	105	SPQ0008	Micro Switch
33	WA1232	Aluminum Panel B	106	APQ0010	Sensor Ass'y
34	WB1093	Cabinet	107	SPQ0004	Micro Switch
35	WD1135	Escutcheon	108	APQ0010	P.C.B. Ass'y
36	WZ1145	Lifter	109	SPQ0005	Micro Switch
37	WZ1148	Main Insulator	110	UOQ0008	Manual Selector Ass'y
38	WZ1189	Cabinet Insulator	111	UOQ0009	Brake Lever Ass'y
39	UW1137	Spacer	112	UUQ0001	Tension Spring
40	UZ1277	Hinge	113	UUQ0002	Tension Spring
41	UZ1278	Hinge Holder	114	UZQ0003	Belt 288
42	WD1134	Escutcheon	120	UZ1279	Mecha. Chassis Unit
43	WE1098	Edge Protector	121	UAQ0002	VDS Base Plate Ass'y
44	WJ1093	Knob	122	UOQ0013	Charge Lever Ass'y L
45	WJ1152	Knob (Start/Cut)	123	UOQ0014	Charge Lever Ass'y R
46	WJ1154	Knob (V.D.S. ON/OFF)	124	UOQ0010	Main Cam Gear
47	WZ1147	Dust Cover	125	UOQ0011	Gear 3
48	WZ1158	Cap	126	UOQ0012	Gear 4
49	WZ1178	Bushing	127	BXQ0002	Pulley
50	WZ1160	Record Sheet	128	UZQ0004	Belt 375
51	BK0063	Arm Cable	129	AMQ0103	Motor (VDS)
52	AM1008	Motor P.C.B.	130	UNQ0001	Motor Cushion
53	P1373-1	PB1373-1	131	SPQ0009	Micro Switch A
54	P1373-2	PB1373-2	132	UZQ0105	Switch Holder
55	P1373-3	PB1373-3	133	UUQ0003	Tension Spring
56	P1373-4	PB1373-4	134	SPQ0010	Micro Switch B
57	UQ00005	Restor Lever Ass'y	135	UNQ0002	Cushion
58	UR1341	Motor Holder Bracket	136	UZQ0005	Column 375
59	YCG24C10	Round Tapping 2.4x10	137	UUQ0004	Charge Lever Spring
60	YCG31C10	Round Tapping 3.1x10			

Remarks:

U....120V For North America.
 AK....220V (With Line Voltage Selector) For Europe, South East Asia.
 AG....240V (With Line Voltage Selector) For England, Australia.
 AZ....120V (With Line Voltage Selector) For North America, South Asia, East Asia.

SCHEMATIC DIAGRAM



SPECIFICATIONS

[Phono Motor Section]

*Driving System: Direct-Drive System
*Moter: DC-servo brushless & slotless quartz-locked motor
*Turntable Platter: 30cm aluminium die-cast with built-in VDS
pump (2.5 kgs)
33-1/3 rpm, 45 rmp (2-speed)
*Rotation: $\pm 3\%$
*~~Adjustable Range of~~
*~~Rotation:-~~ better than 70dB(DIN B)
*S/N Ratio: no more than 0.03% W.R.M.S.
*Wow & Flutter:

[Tonearm Section]

*Tonearm: Straight Arm of static balance type
*Effective Length: 230mm
*Tracking Error: $\pm 2^{\circ} 12'$ $1^{\circ} 30'$
*Overhang: 16mm
*Cartridge Weight: 5g~10g
*Cartridge Height: 16mm~19mm (by use of spacers)
*Stylus Pressure: 0~3g (direct reading)
*Accessories: Anti-skate adjustment

[Additional Features]

*Dust Cover: Detachable with semi-freestop hinge
*Automatic Function: Auto-Lead-In(Auto Start), Auto-Repeat, Operation
Mode Selector(repeat, auto, auto-lift-off),
Start/Cut Button

[General]

*Power Consumption: 10W(CSA rated)
*Dimensions: 438 (W) x 165 (H) x 365 (D) mm
(13.9" x 6.4" x 14.6")
*Weight: Net 10.5 kgs (23.1 lbs.)
Gross 12.0 kgs (26.4 lbs.)

Specifications and appearance design subject to change without notice.